TXD SERIES

USER MANUAL

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CONTENTS

Contents 2
Introduction 3
Thanks 3
Unpacking the TXD series loudspeaker 3
Features 4
Product Range Summary 5
TXD-121 5
TXD-151 5
TXD-115 6
TXD-215 7
TXD-118 7
TXD-12M 8
System requirements 9
Bi-amplified operation 10
Amplifier considerations 11
Equalisation 11
Dispersion 11
System Connections 13
Passive two way system 13
Passive full-range system with subs 13
Passive full-range system with subs 14
Passive full-range system with subs 14
Live performance monitor system 15
Bi-amplified system with subs 15
Club system with multiple zones 16
Mounting and fixing 17
Choosing the best location 18
Maintenance 19
Removal of the low frequency driver(s) 19
Removal of the high frequency compression driver 19
Appendix B 20
Technical Specifications 20
Appendix C 22
Spares and Accessories 22
Flying Accessories 22
Appendix A 23
Use of thread locking compounds 23
The parts may be disassembled by hand if required. 23
Appendix D 24
Limited Warranty 24

INTRODUCTION

Thanks

Thank you for choosing a TURBOSOUND TXD series loudspeaker product for your application. Please spare a little time to read the contents of this manual, so that you can obtain the best possible performance from this unit.

All TURBOSOUND products are carefully engineered for world class performance and reliability.

If you would like further information about this or any other TURBOSOUND product, please contact us. Detailed product information is available on our web site at www.turbosound.com

We look forward to helping you in the near future.

Congratulations, you have just purchased a professional loudspeaker system from the renowned Turbosound range, designed to give you the best in audio quality and many years of reliable, trouble free operation. It offers superior audio quality, full technical documentation, and rigging and flying hardware options. Please read through this manual carefully before you attempt to operate the loudspeaker system. It contains valuable information enabling you to quickly and easily set up and connect the loudspeakers, important system and set-up checks together with positioning and mounting instructions.

Unpacking the TXD series loudspeaker

After unpacking the unit please check carefully for damage. If damage is found, please notify the carrier concerned at once. You, the consignee, must instigate any claim. Please retain all packaging in case of future re-shipment.

FEATURES

- **Superb audio quality**: carefully designed and matched loudspeaker drive units are used to give you exceptional performance and many years of reliable, trouble free operation.
- **High quality loudspeaker components** are used throughout the range. Low frequency drivers are specified for high sensitivity and durability, while high frequency drivers are selected for consistent and reliable performance.
- **High frequency protection system**: two-stage thermal overload circuits operate on all two-way products to prevent damage to the HF drive units from both transient peaks and long term heating effects.
- **Professional appearance**: TXD series enclosures are equally suited to live sound and DJ applications as well as permanent installations.
- **Easy transportability**: comfortable, ergonomic flush handles are provided on all TXD series enclosures for easy lifting and transportation in mobile sound reinforcement applications.
- **Wide dispersion**: TXD series enclosures are designed to give wide and even dispersion patterns in order to maximise sound coverage over a given area from single loudspeakers.
- **Solid construction**: all Turbosound TXD series cabinets are built from high grade, multi-layer birch plywood and are finished in a durable semi-matt textured paint.
- **Integral rigging points**: fitted as standard, enabling use with optional M10 shoulder eyebolts for many types of fixed installations. TXD-121 and TXD-151 enclosures can be permanently installed using Turbosound or PowerDrive™ wall and ceiling brackets. All models are type-tested for load rating to ensure safe rigging.
- **Pole mount and tripod stand use** is facilitated by the provision of integral pole mount fittings on all models.
- **Speakon NL4MP connectors** are fitted to all TXD series enclosures, enabling simple and easy hook-ups as well providing loop-in / loop-out facilities to additional enclosures.

PRODUCT RANGE SUMMARY

TXD-121

The TXD-121 is a compact trapezoidal passive two-way loudspeaker enclosure designed for use in a wide variety of live sound, fixed installation and mobile DJ applications that require professional sound quality in an easily transportable format.

It consists of a 12" reflex-loaded low frequency driver and a 1" high frequency compression driver on a 70°H x 40°V dispersion HF horn in an optimally tuned trapezoidal enclosure. These high-grade components are matched with an internal second order passive crossover network to ensure a seamless transition between the HF and LF drivers.

The crossover incorporates a two stage thermal overload protection system which prevents damage to the high frequency driver, reacting instantly to large transient peaks while still allowing wide dynamic range to be maintained. Although the protection system is transparent at normal operating levels, as the level increases the signal is gradually and imperceptibly compressed once the critical threshold has been reached.

The cabinet is constructed from 15mm (5/8") birch plywood, screwed and glued together for maximum rigidity. A pole mount socket is fitted for use with optional 35mm poles and loudspeaker stands. Two recessed flush handles are provided for easy lifting and carrying and four rubber feet are fitted to the bottom of the cabinet. A grey powder-coated perforated steel mesh grille protects the drivers from damage.

M10 rigging points are provided on the top and rear of the cabinet to enable it to be suspended and angled in permanent installations using shoulder eyebolts. M8 rigging points are provided on the rear of the cabinet for use with Turbosound wall and ceiling brackets, and these are also compatible with PowerDrive™ wall and ceiling brackets. Two Neutrik Speakon NL4MP speaker connectors are located on the rear panel, providing input and parallel connections to additional TXD series cabinets or bass enclosures.

TXD-151

The TXD-151 is a trapezoidal passive two-way loudspeaker enclosure designed for use in a wide variety of live sound, fixed installation and mobile DJ applications that require professional sound quality in an easily transportable format.

It consists of a 15" reflex-loaded low frequency driver and a 1" high frequency compression driver on a 70°H x 40°V dispersion HF horn in an optimally tuned trapezoidal enclosure. These high-grade components are matched with an internal second order passive crossover network to ensure a seamless transition between the HF and LF drivers.

The crossover incorporates a two stage thermal overload protection system which prevents damage to the high frequency driver, reacting instantly to large transient peaks while still allowing wide dynamic range to be maintained. Although the protection system is transparent at normal operating levels, as the level increases the signal is gradually and imperceptibly compressed once the critical threshold has been reached.

The cabinet is constructed from 15mm (5/8") birch plywood, screwed and glued together for maximum rigidity. A pole mount socket is fitted for use with optional 35mm poles and loudspeaker stands. Two recessed flush handles are provided for easy lifting and carrying and four rubber feet are fitted to the bottom of the cabinet. A grey powder-coated perforated steel mesh grille protects the drivers from damage.

M10 rigging points are provided on the top and rear of the cabinet to enable it to be suspended and angled in permanent installations using shoulder eyebolts. M8 rigging points are provided on the rear of the cabinet for use with Turbosound wall and ceiling brackets, and these are also compatible with PowerDrive™ wall and ceiling brackets. Two Neutrik Speakon NL4MP speaker connectors are located on the rear panel, providing input and parallel connections to additional TXD series cabinets or bass enclosures.

TXD-115

The TXD-115 is a front-loaded low frequency loudspeaker enclosure designed to give bass and sub-bass reinforcement to TXD series 2-way enclosures in a wide variety of live sound applications, as well as in fixed installations ranging from cafes, pubs, bars and restaurants to retail stores and houses of worship.

It consists of a reflex-loaded 15" low frequency driver in an optimally tuned rectangular enclosure. The TXD-115 includes a low-pass crossover network which filters high frequency signals from the bass driver when used in conjunction with 2-way enclosures such as the TXD-121 or TXD-151, enabling a full range system to be powered from a single amplifier channel without the need for external electronic crossovers.

The enclosure is fitted with internal M10 threaded rigging points on the top and rear, which allow single cabinets to be suspended and angled in fixed installations using optional M10 shoulder eyebolts.

The cabinet is constructed from 15mm (5/8") birch plywood, and is finished in a durable semi-matt textured TurboBlue™ paint. Two flush handles are provided on the sides for easy lifting and carrying, and four rubber feet are fitted to the bottom of the cabinet. Two Neutrik Speakon NL4MP connectors provide input and parallel connections to additional TXD series cabinets.

TXD-215

The TXD-215 is a front-loaded low frequency loudspeaker enclosure designed to give bass and sub-bass reinforcement to TXD series 2-way enclosures in a wide variety of live sound applications, as well as in fixed installations ranging from cafes, pubs, bars and restaurants to retail stores and houses of worship.

It consists of two reflex-loaded 15" low frequency drivers in an optimally tuned rectangular enclosure. The TXD-215 includes a low-pass crossover network which filters high frequency signals from the bass driver when used in conjunction with 2-way enclosures such as the TXD-121 or TXD-151, enabling a full range system to be powered from a single amplifier channel without the need for external electronic crossovers.

The cabinet is constructed from 15mm (5/8") birch plywood, screwed and glued together for maximum rigidity. Pole mount sockets are fitted on the top and sides of the cabinet to enable full range cabinets to be mounted on optional 35mm poles. When used in a horizontal format the two side-mounted pole mounts allow two TXD series enclosures to be mounted on top of a single bass cabinet to provide wider horizontal dispersion. Four recessed flush handles are provided for easy lifting and carrying and the cabinet is pre-drilled for optional T4 wheels. Four rubber feet are fitted to the bottom of the cabinet, and a grey powder-coated perforated steel mesh grille protects the drive units from damage.

M10 rigging points are provided on the top and rear of the cabinet, which allow single cabinets to be suspended and angled in fixed installations using optional M10 shoulder eyebolts.

Two Neutrik Speakon NL4MP connectors are located on the rear panel, providing input and parallel connections to additional TXD series cabinets.

TXD-118

The TXD-118 is a front-loaded low frequency loudspeaker enclosure designed to give bass and sub-bass reinforcement to TXD series 2-way enclosures in a wide variety of live sound applications, as well as in fixed installations ranging from cafes, pubs, bars and restaurants to retail stores and houses of worship.

It consists of a front-loaded 18" low frequency driver in a birch plywood enclosure, optimally tuned for extended low frequency response. The TXD-118 includes a low-pass crossover network which filters high frequency signals from the bass driver when used in conjunction with 2-way enclosures such as the TXD-121 or TXD-151, enabling a full range system to be powered from a single amplifier channel without the need for external electronic crossovers

The enclosure is fitted with internal M10 threaded rigging points on the top and rear, which allow single cabinets to be suspended and angled in fixed installations using optional M10 shoulder

eyebolts. A pole mount socket is fitted to the top of the cabinet to enable two-way enclosures to be mounted on 35mm poles.

The cabinet is constructed from 15mm (5/8") birch plywood, and is finished in a durable semi-matt textured TurboBlue™ paint. Two flush handles are provided on the sides for easy lifting and carrying, and four rubber feet are fitted to the bottom of the cabinet. Two Neutrik Speakon NL4MP connectors provide input and parallel connections to additional TXD series loudspeakers.

TXD-12M

The TXD-12M is a compact passive two-way wedge monitor enclosure designed for use in a wide variety of live sound, fixed installation and mobile DJ applications that require professional sound quality in an easily transportable format.

It consists of a 12" reflex-loaded low frequency driver and a 1" high frequency driver on a 40°H x 70°V dispersion HF horn in an optimally tuned enclosure. These high grade components are matched with a third order passive crossover network to ensure a seamless transition between the HF and LF devices.

The crossover network incorporates a two-stage thermal overload protection system which prevents damage to the high frequency driver, reacting instantly to large transient peaks while still allowing wide dynamic range to be maintained. Although the protection system is transparent at normal operating levels, as the level increases the signal is gradually and imperceptibly compressed once the critical threshold has been reached.

The cabinet is constructed from 15mm (5/8") birch plywood, screwed and glued together for maximum rigidity. Its symmetrical shape allows the monitor to be inverted and used as left/right mirror image pairs.

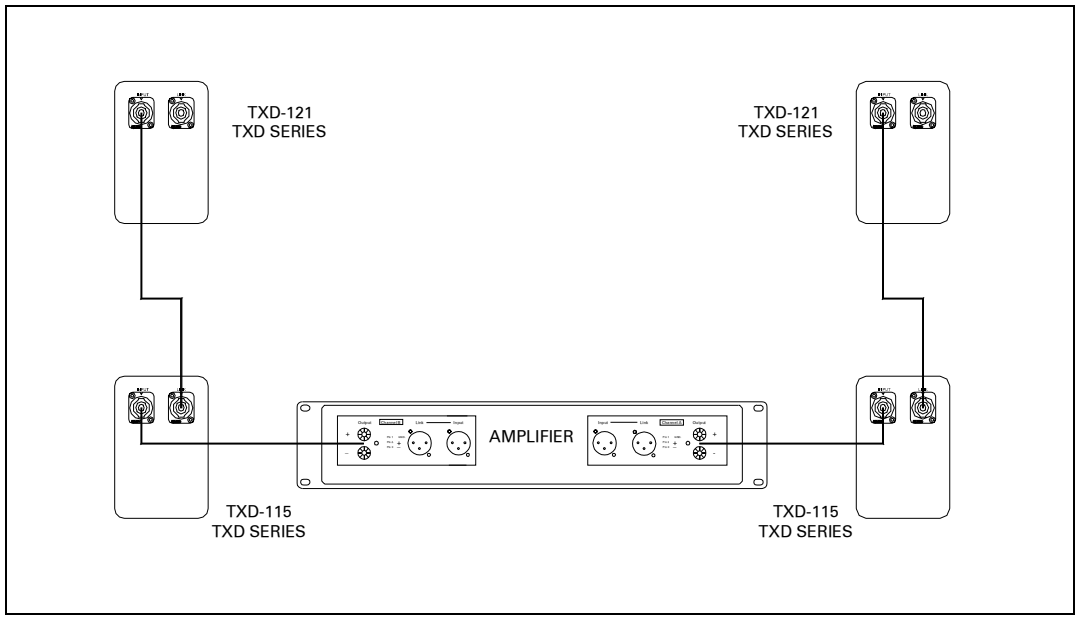
In addition to its primary function as a floor monitor, the TXD-12M is also suitable for front-of-house applications and can be used with the integral pole mount socket on top of optional 35mm poles and loudspeaker stands. Two recessed flush handles are provided for easy lifting and carrying, and eight rubber feet are fitted. A grey powder-coated perforated steel mesh grille protects the drive units from damage.

A Neutrik Speakon NL4MP connector is located at each end of the cabinet on recessed panels, providing input and parallel link connections to additional TXD series monitors.

SYSTEM REQUIREMENTS

TXD series enclosures are passive loudspeaker systems. This means that they require only one amplifier channel for correct operation, the frequency splitting between the low frequency driver and the high frequency driver or mid and high frequency driver being accomplished by the internal passive crossover network built into each enclosure.

If low frequency enclosures are used to extend low frequency response, this can be achieved without the need for additional amplifier channels or external electronic crossovers. All TXD series low frequency enclosures are equipped with internal low pass crossover networks which filter mid and high frequencies away from the bass speaker. Therefore a full range system consisting of, for example, a TXD-121 and a TXD-115 can be powered from a single amplifier as shown below, thereby saving the expense of additional amplifiers and external crossovers.

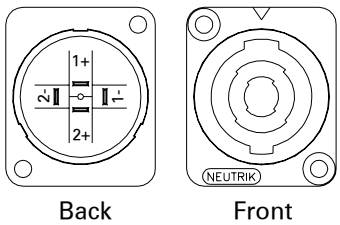


1. Connect the amplifier output to the Speakon INPUT socket on the bass enclosure.

2. Then connect an additional speaker cable from the LINK socket on the bass cabinet to the INPUT socket on the full range cabinet. Speakon pin connections are shown below.

Speakon Pin Wiring

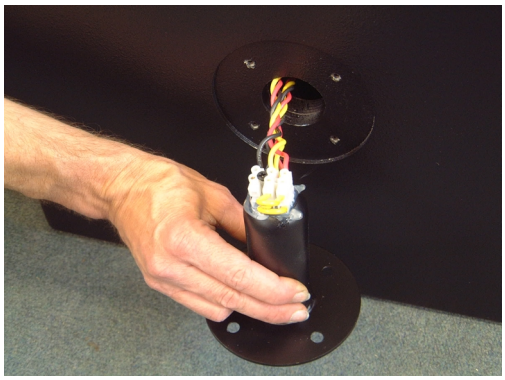
Pin 1+ Positive
Pin 1- Negative
Pin 2+ No Connection
Pin 2- No Connection

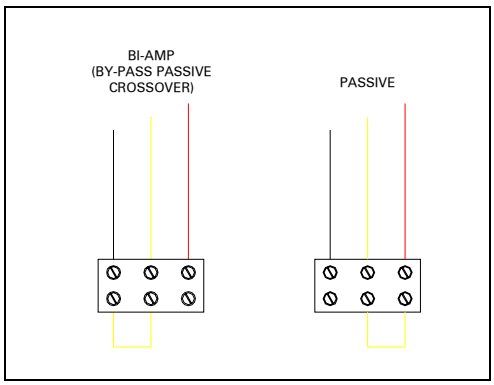


Bi-amplified operation

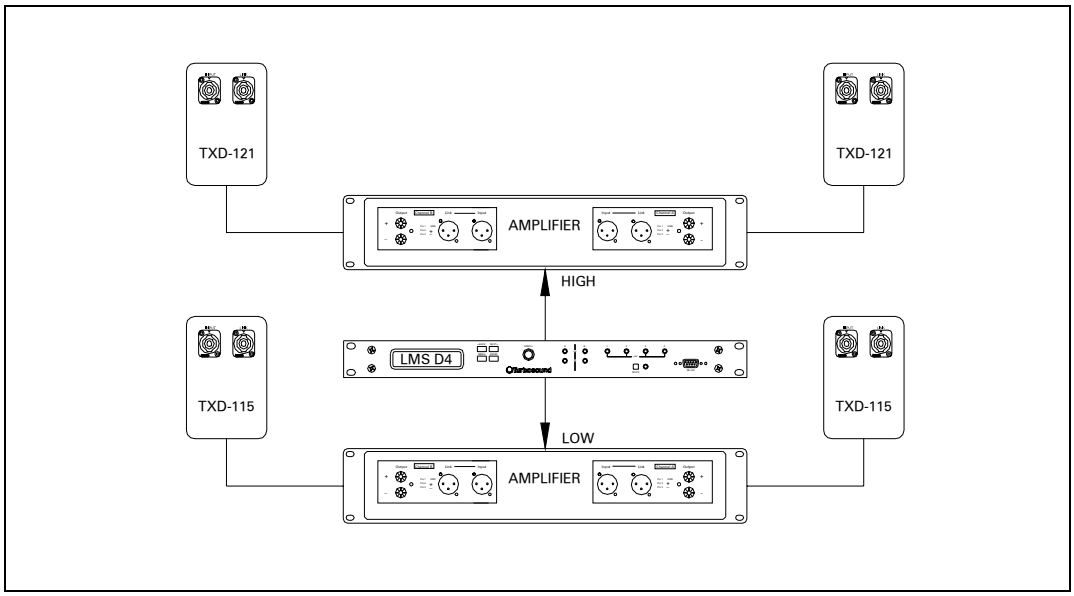
TXD series two-way loudspeakers can also be operated in bi-amplified mode together with any of the available bass enclosures, in order to give enhanced audio performance and greater overall sound pressure level. In this case one amplifier will power the full range loudspeakers, while another is required to power the bass cabinets. An external 2-in, 4-out crossover, such as the LMS-D4 digital loudspeaker management system, is required with a crossover frequency at 150Hz.

To operate TXD systems in bi-amplified mode, it is necessary to bypass the passive crossover in the bass cabinet. To do this, undo the four screws holding the pole mount socket in place, and firmly pull the pole mount out of the cabinet together with the passive crossover selection wiring. In the case of the TXD-215, remove the lower side pole mount.





Mode selection is determined by the position of the wire links on the connector block. To bypass the internal passive crossover, connect the yellow link wire from the red to the black as shown in the diagram above and replace the pole mount in the cabinet.



Amplifier considerations

Turbosound speaker enclosures should be driven by high quality power amplifiers designed for true professional use. Such amplifiers will have balanced inputs, DC and RF fault protection, and well-designed cooling systems for reliability.

The program power listed in the loudspeaker's technical specification is the best guide to the size of amplifier required for general-purpose applications. The amplifier should therefore be capable of delivering long term broadband power equal to the loudspeaker's program power rating at the loudspeaker's stated nominal impedance. This approach allows sufficient headroom to generate good dynamic range.

RECOMMENDED AMPLIFIER POWER RATINGS:

The amplifier's rated r.m.s. continuous power output (20Hz – 20kHz, per channel) should be equal to the program power handling of the loudspeaker at its nominal impedance.

In general, the more powerful the amplifier the better it will sound, provided that it is not driven into sustained clipping. It should be understood that overdriving an insufficiently powered amplifier is more likely to cause loudspeaker damage – the total energy in a heavily clipped signal is far higher than in an unclipped signal – than operating a more powerful one within its ratings.

Equalisation

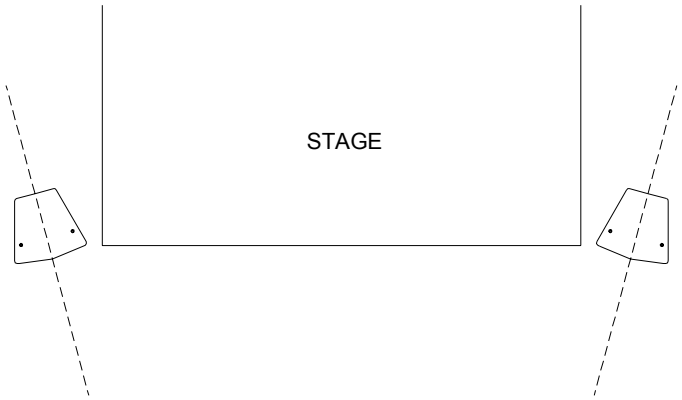
TXD series enclosures are designed to provide smooth and even frequency response. They do not need excessive amounts of external equalisation to overcome the sonic deficiencies often found in many lesser designs.

In order to compensate for the room acoustics, TXD series enclosures require only minimal equalisation. As in any system, over-equalisation introduces phase shifts, distortion and a reduction in headroom, usually causing more problems than it cures. Under most circumstances a 1/3 or 1/2 octave graphic equaliser will generally be adequate, with the fader settings applied smoothly and as little as possible for the required room compensation. Most rooms will have resonances that will be excited at particular frequencies needing some *cut* to help tame the sound. These problems are most pronounced at the lower frequencies where loudspeakers generally exhibit very little directional control. If you find that the system needs a lot of *boost* at lower frequencies you may need additional sub-bass units. It is good practice to use as little equalisation as possible, aiming to cut frequencies rather than adding large amounts of boost.

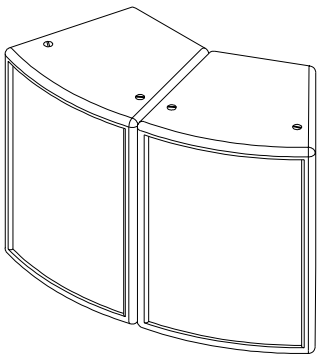
Dispersion

TXD series enclosures are designed to provide relatively wide (70°) horizontal coverage. This allows the majority of live sound applications to be covered with single enclosures placed individually to take advantage of this performance feature, for example either side of a stage in a

pub or small club environment as shown below. For best results the loudspeakers should be either mounted on tripod stands or supported on straight poles on top of TXD series bass enclosures. In order to optimise the sound coverage, point the loudspeakers inwards slightly, such that the centre lines intersect at a distance approximately equal to twice the width of the stage.



It is possible to array TXD series loudspeakers in order to achieve wider horizontal coverage and in these applications it is recommended that the cabinets be placed such that the trapezoidal sides are touching to ensure that the appropriate splay angle is observed. For guidance when designing a sound system, a 70° horizontal polar pattern equals an angle of 35° either side of the centre line at which the sound pressure level is 6dB down with respect to centre, (averaged over the whole frequency range of the loudspeaker). Thus a 40° vertical dispersion gives an angle of 20° above and below the horizon.

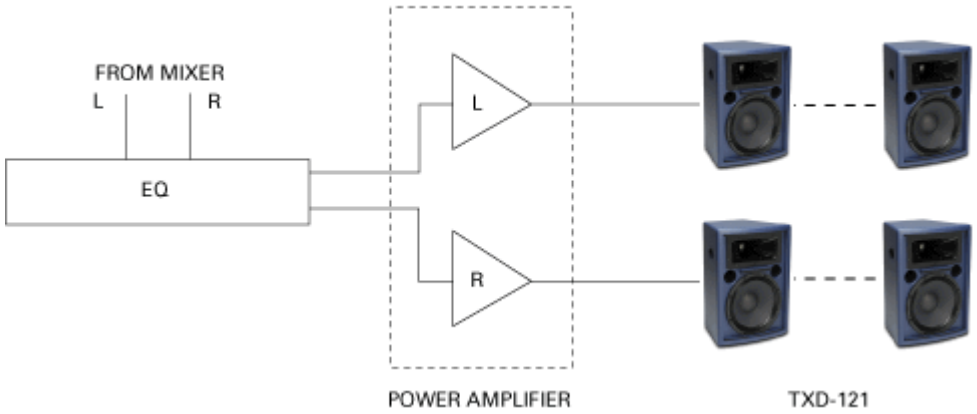


SYSTEM CONNECTIONS

The following diagrams illustrate several TXD series applications, ranging from a simple live performance system of just two loudspeakers to a multi-zoned nightclub system

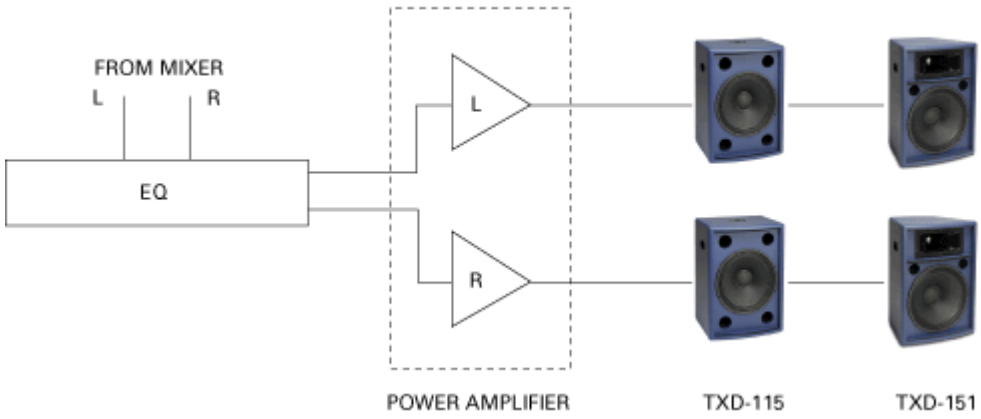
Passive two way system

Connect a second pair of loudspeakers in parallel (shown with dotted lines) if required, using the link connections on the rear panel.



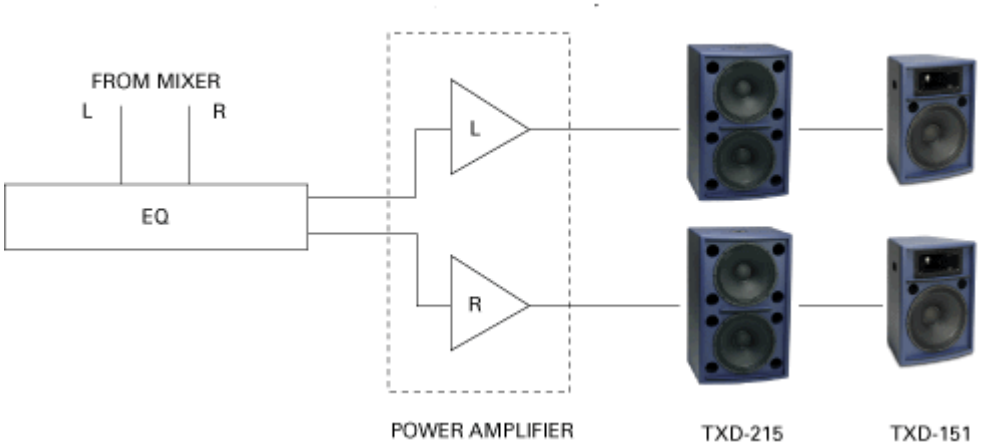
Passive full-range system with subs

Connect the power amplifier first to the bass cabinets, and then to the two-way loudspeakers using the link connections.

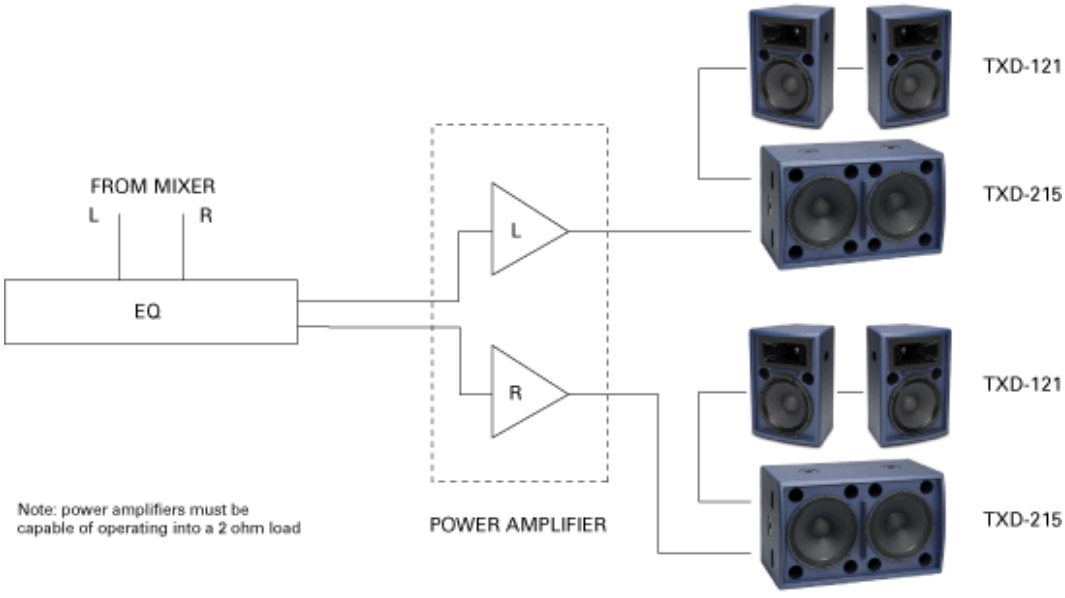


Passive full-range system with subs

Connect to the bass cabinets as in the example above.

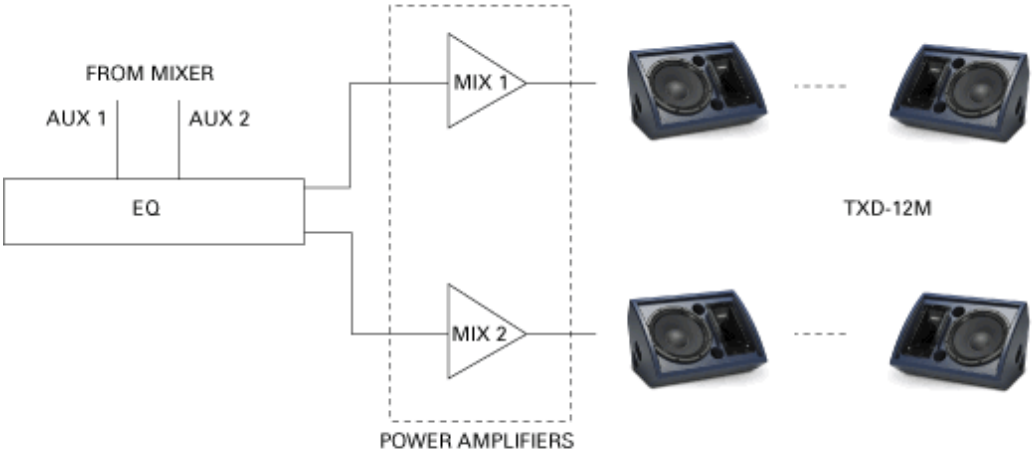


Passive full-range system with subs

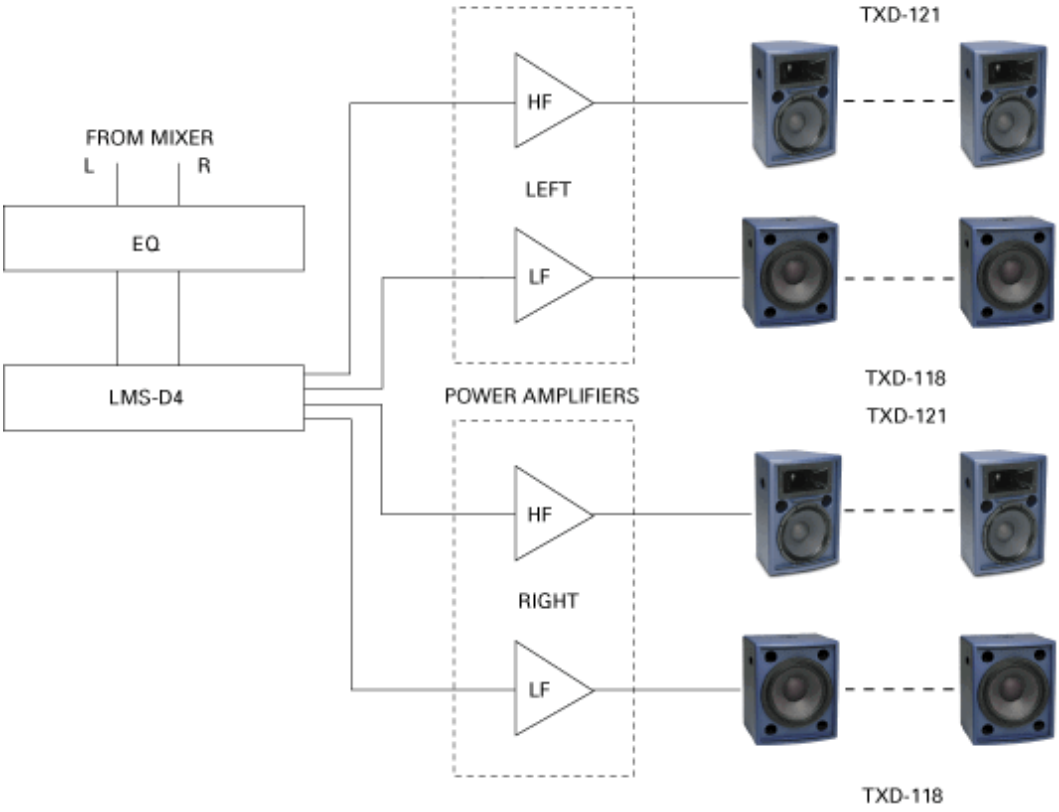


Live performance monitor system

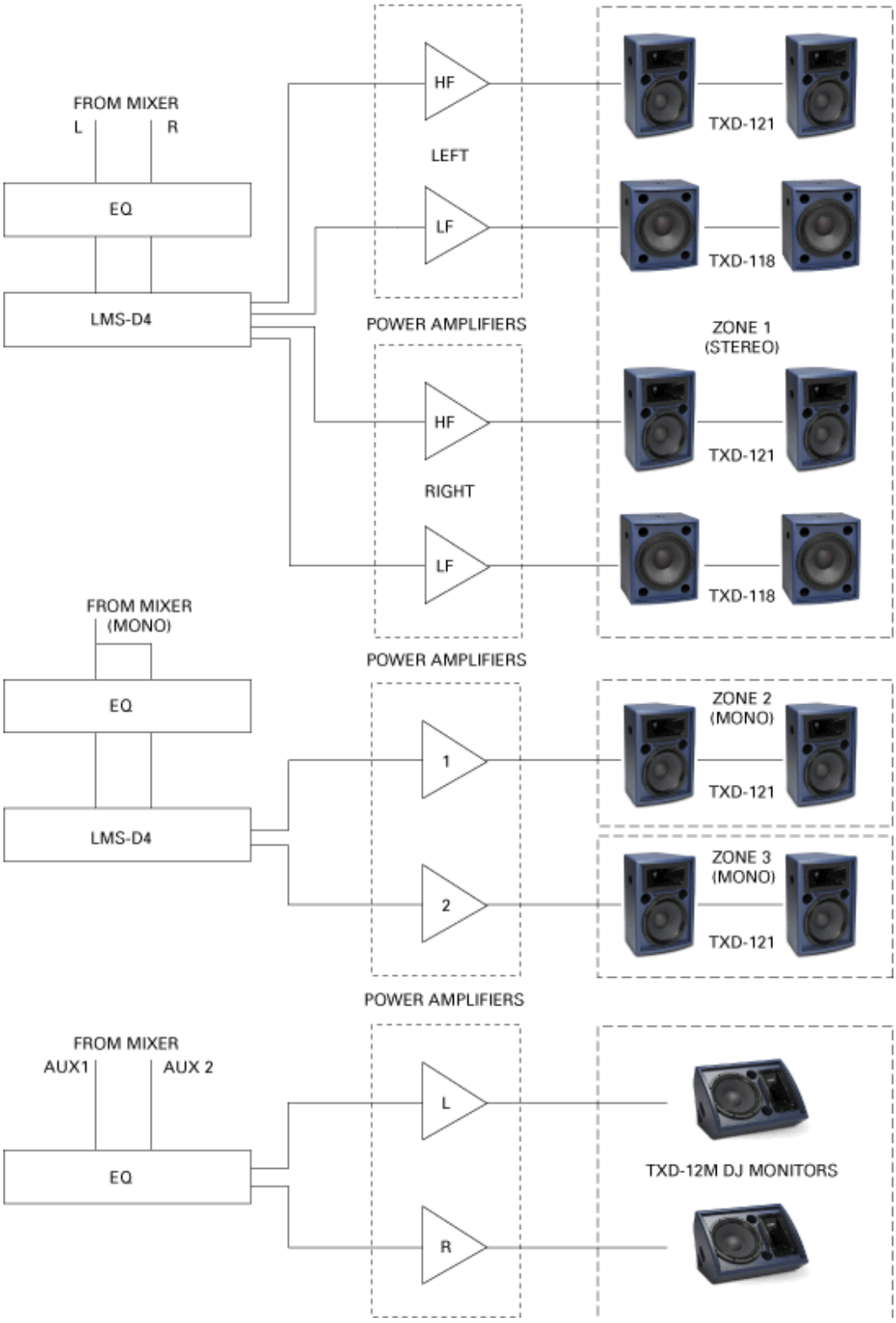
Take auxiliary feeds from the mixer via a graphic equaliser to two separate channels of a power amplifier. Connect a second unit in parallel to form mirror-image pairs.



Bi-amplified system with subs

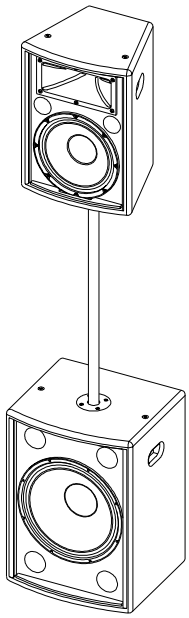


Club system with multiple zones



MOUNTING AND FIXING

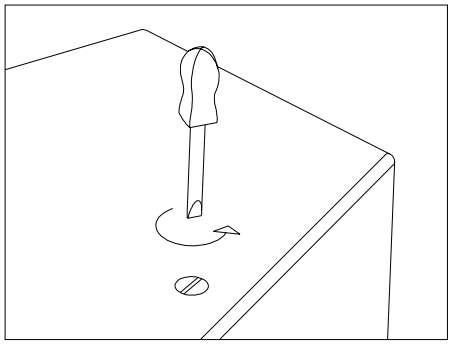
A versatile range of mounting hardware is available that allows enclosures to be used in a variety of ways, in either mobile sound reinforcement applications or permanent installations.

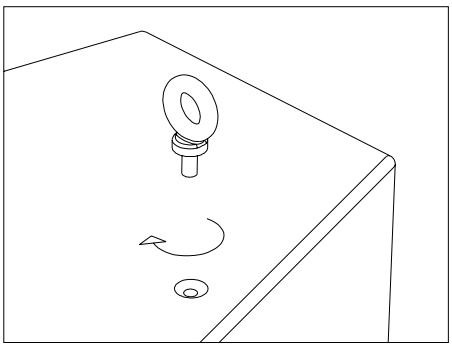


A pole mount / tripod stand fitting is fitted to the bottom of the TXD-121 and TXD-151 full range cabinets. Use this pole mount facility with either optional Turbosound PA-60, PA-90 or PA-100 35mm diameter poles, or conventional loudspeaker tripod stands. Doing so will raise the loudspeaker above the heads of an audience, providing better sound coverage from a single enclosure. A matching pole mount socket is provided on the top of the TXD series low frequency enclosures to accept the various poles.

All TXD series cabinets, including low frequency enclosures, can be rigged in permanent installations using **optional M10 shoulder eyebolts**. The top of each cabinet is provided with two internal threaded rigging points, and a further rigging point is provided on the back panel which is used to vary the amount of downward angle. As supplied, these rigging points are fitted externally with M10 countersunk slot-head screws. To facilitate rigging of the enclosure simply remove these M10 screws and replace them with M10 x 18mm shoulder eyebolts using a suitable thread locking compound to avoid the possibility of loosening (please refer to Appendix C: Use of thread locking compounds at the back of this manual). **Note:** Eyebolts must have a thread length of at least 18mm (3/4").

NOTE: The rigging points are designed to suspend single enclosures only. There is no facility to hang an additional cabinet below a flown TXD series enclosure.





IMPORTANT: Any installation, whether temporary or permanent, must be securely attached to the structure of the building using chain, steel wires or web straps which are certified and load rated for the purpose. The combined weight of the sound system, its cables and the rigging system must be safely carried by the points at which attachment is made to the building or structure. Great care must be taken in selecting the attachment points and methods, being absolutely sure of the load carrying capacity of points chosen.

NOTE: The rigging of loudspeaker systems is an extremely serious matter with potentially lethal consequences should anything go wrong. It is of vital importance that you, or other people rigging the system, are suitably qualified to do so and have a full understanding of all the factors involved with safety as a number one priority. Turbosound accepts no responsibility for any accident, damage or failure of any rigged system. This rigging information is specifically related to the requirements of TXD series enclosures only. For more detailed information on the whole topic of rigging various handbooks are available. If you are in any doubt contact your Turbosound dealer who will be able to refer you to an experienced rigging company.

CHOOSING THE BEST LOCATION

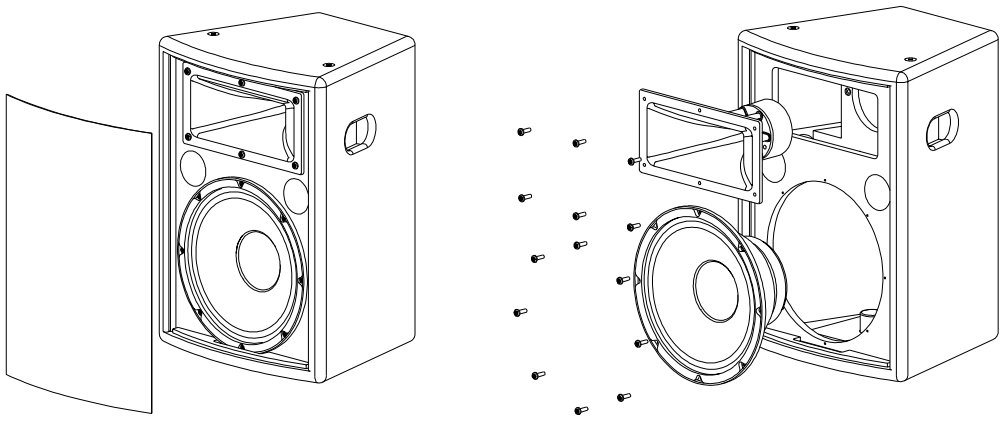
When using any loudspeaker system certain room parameters will affect the resultant sound quality and coverage. For example, any boundary like a wall or floor will lift certain frequencies. If you are placing the unit in a corner then a lift at the bass end is to be expected and it may sound rather boomy. This can be compensated for moving the speaker or cutting low frequencies with a graphic equaliser.

When speakers are flown in free space then boundary effects are minimised. The result is a smooth frequency response without any boost at odd frequencies, but the bass end may appear subjectively light. In this case increase the sub-bass level to bring the low end up.

The relationship between sound pressure level and distance is an “inverse square law” so remember that every time the distance from the sound source is doubled the sound level decreases by 6dB. For every 3dB increase of speaker output you need a doubling of input power and you can work out the wattage input needed to give the required SPL levels at various distances from the loudspeaker(s).

MAINTENANCE

If any of the drive units in your TXD series cabinet should cease functioning and need a replacement recone or diaphragm, you are advised to remove the faulty unit from the cabinet and send it to a professional service centre authorised to repair Turbosound loudspeakers.



Removal of the low frequency driver(s)

The perforated steel loudspeaker grille is held in place under tension only, fitting into slots at either side of the baffle. There are no screws or other fixings holding the grille in place. Lay the cabinet on its back and, using two small screwdrivers inserted through the mesh of the grille, firmly pull the grille away from the slot at one side of the baffle until it is free. Set the grille aside for later re-assembly.

Undo the four screws holding the driver(s) in place and carefully lift it out and away from the cabinet. Make a note of the driver polarity for later reconnection. Disconnect the cables from the drive unit and completely remove the driver from the cabinet.

To reinstate the driver(s) simply reverse the above procedure, making sure you observe the correct polarity when reconnecting the cables back into the terminals of the drive units.

Removal of the high frequency compression driver

Remove the loudspeaker grille as described above and set the grille aside for later re-fitting.

Remove the horn/driver assembly by unscrewing the four screws holding the flange in place. Lift it out and away from the cabinet. The high frequency driver can now be disassembled from the HF horn.

Appendix B

Technical Specifications

	TXD-121	TXD-12M	TXD-151
Dimensions (H x W x D)	553mm x 411mm x 352mm (21.8″ x 16.2″ x 13.9″)	435mm x 533mm x 288mm (17.1″ x 21.8″ x 11.3″)	652mm x 465mm x 423mm (25.7″ x 18.3″ x 16.7″)
Net weight	20kg (44lbs)	18kg (39.6lbs)	28kg (61.6lbs)
Components	1 x 12″ LF driver 1 x 1″ HF compression driver	1 x 12″ LF driver 1 x 1″ HF compression driver	1 x 15″ LF driver 1 x 1″ HF compression driver
Frequency response	60Hz – 20kHz ±4dB	65Hz – 20kHz ±4dB	45Hz – 20kHz ±4dB
Nominal dispersion	70°H x 40°V @-6dB pts	40°H x 70°V @-6dB pts	70°H x 40°V @-6dB pts
Sensitivity	97dB, 1 watt @ 1metre	97dB, 1 watt @ 1metre	99dB, 1 watt @ 1 metre
Power handling	300 watts r.m.s. 600 watts program	300 watts r.m.s. 600 watts program	300 watt r.m.s. 600 watts program
Maximum SPL	122dB continuous 128dB peak	122dB continuous 128dB peak	124dB continuous 130dB peak
Construction	15mm (5/8″) birch plywood	15mm (5/8″) birch plywood	15mm (5/8″) birch plywood
Grille	Powder coated perforated steel	Powder coated perforated steel	Powder coated perforated steel
Connectors	(2) Speakon NL4MP wired pin 1+ positive, pin 1- negative	(2) Speakon NL4MP wired pin 1+ positive, pin 1- negative	(2) Speakon NL4MP wired pin 1+ positive, pin 1- negative

Due to continuing product improvement the above specifications are subject to change.

	TXD-115	TXD-215	TXD-118
Dimensions (H x W x D)	652mm x 465mm x 423mm (25.7″ x 18.3″ x 16.7″)	891mm x 550mm x 505mm (35.1″ x 21.7″ x 19.9″)	652mm x 540mm x 484mm (25.7″ x 21.3″ x 19.1″)
Net weight	25kg (55lbs)	47kg (103.4lbs)	28kg (61.6lbs)
Components	1 x 15″ LF driver	2 x 15″ LF drivers	1 x 18″ LF driver
Frequency response	43Hz – 150Hz ±4dB	40Hz – 150Hz ±4dB	36Hz – 150Hz ±4dB
Sensitivity	96dB, 1 watt @ 1metre	99dB, 1 watt @ 1metre	98dB, 1 watt @ 1 metre
Power handling	300 watts r.m.s. 600 watts program	600 watts r.m.s. 1200 watts program	300 watt r.m.s. 600 watts program
Maximum SPL	121dB continuous 127dB peak	127dB continuous 133dB peak	123dB continuous 129dB peak
Construction	15mm (5/8″) birch plywood	15mm (5/8″) birch plywood	15mm (5/8″) birch plywood
Grille	Powder coated perforated steel	Powder coated perforated steel	Powder coated perforated steel
Connectors	(2) Speakon NL4MP wired pin 1+ positive, pin 1- negative	(2) Speakon NL4MP wired pin 1+ positive, pin 1- negative	(2) Speakon NL4MP wired pin 1+ positive, pin 1- negative

Due to continuing product improvement the above specifications are subject to change.

APPENDIX C

Spares and Accessories

CD-111	1″ HF compression driver
RD-111	Replacement diaphragm for CD-111
LS-1219	12″ LF loudspeaker
RC-1219	Recone kit for LS-1219
LS-1514	15″ LF loudspeaker
RC-1514	Recone kit for LS-1514
LS-1521	15″ LF loudspeaker
RC-1521	Recone kit for LS-1521
LS-1807	18" LF loudspeaker
RC-1807	Recone kit for LS-1807
MG-121/X	Metal grille for TXD-121/TXD-12M
MG-151/X	Metal grille for TXD-151
MG-115/X	Metal grille for TXD-115
MG-215/X	Metal grille for TXD-215
MG-118/X	Metal grille for TXD-118
PX-121/X	Passive crossover network for TXD-121/TXD-12M
PX-151/X	Passive crossover network for TXD-151
PX-115/X	Passive crossover network for TXD-115
PX-215/X	Passive crossover network for TXD-215
PX-118/X	Passive crossover network for TXD-118

Flying Accessories

EB-10	M10 x 18mm shoulder eyebolt
WB-100	Ceiling bracket
CB-100	Wall bracket
PA-60	35mm diameter straight pole, 60cm long
PA-90	35mm diameter straight pole, 90cm long
PA-100	35mm diameter straight pole, 100cm long

APPENDIX A

Use of thread locking compounds

When assembling flying hardware to loudspeaker enclosures it is advisable to use thread-locking compounds to eyebolts and other bolts in order to avoid any possibility of loosening.

The recommended thread-locking compound is Loctite 222.

The threaded rigging points used in TXD series enclosures are manufactured from zinc-plated mild steel. Therefore, and additionally if the external bolts used are zinc-plated, zinc-passivated, stainless steel or anodised (as the majority are), then the corresponding activator, Loctite 7471, should be used to achieve 100% performance.

Application: Spray Loctite 7471 into the thread holes and allow to evaporate. Apply Loctite 222 thread locking compound to the bolts prior to fitting, allowing sufficient to fill all the engaged threads. Assemble components and tighten as necessary.

THE PARTS MAY BE DISASSEMBLED BY HAND IF REQUIRED.

APPENDIX D

Limited Warranty

This Turbosound loudspeaker product is warranted to the original end-user purchaser and all subsequent owners for a period of two (2) years from the original date of purchase.

Warranty Coverage

Warranty coverage includes defects in materials and workmanship. It does not include:

- damage caused by accident, misuse, abuse, neglect or modification by any person other than an authorised Turbosound representative,
- damage caused by failure to operate the product in accordance with the instructions contained in the user manual,
- damage occurring during shipment in transit,
- claims based on any misrepresentation by the seller,
- products which do not have the original components as specified in the product engineering information,
- products on which the serial number has been removed or defaced.

Shipping

Should any fault develop with a component of your Turbosound system, please return the product, freight pre-paid, in its original packing carton, along with proof of purchase such as the original bill of sale or receipted invoice, and a description of the suspected fault to Turbosound Ltd. (Att: Customer Service), Star Road, Partridge Green, West Sussex RH13 8RY, England, or your local authorised Turbosound representative. The product serial number must be quoted in all correspondence relating to the claim. Insurance is recommended, as Turbosound or its representatives are not liable for loss or damage in transit. Turbosound will pay for return freight costs should repairs be covered under warranty.

Incidental and consequential damages

Turbosound's liability is limited to the repair or replacement, at our option, of any defective product, and shall not be liable for any incidental and consequential damages including, without limitation, injury to persons or property or loss of use.

Limitation of implied warranties

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

This warranty is in addition to, and in no way detracts from, your statutory rights as a consumer. No other warranty is expressed or implied.

Please record your purchase information below for future reference:

Dealer Name _____

Dealer Address _____

_____

_____

Post / Zip Code _____

Dealer telephone / fax _____

Invoice number _____

Date of purchase _____

Unit serial number _____

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